

A Look Back

THE LAST CRUISE OF THE CARNEGIE

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Surgeon and Observer

With a Foreword by John A. Fleming, Acting Director
Department of Terrestrial Magnetism, Carnegie Institution of
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The *Carnegie* – the world's only sea-going non-magnetic observatory – was constructed by the Carnegie Institution of Washington to obtain geophysical data over the oceans. This vessel was part of the equipment of the Institution's Department of Terrestrial Magnetism, founded April 1, 1904, realizing a plan for an international magnetic bureau submitted by Dr. Louis A. Bauer, the Department's director from 1904 and its director emeritus from 1930. The purpose of the Department, set forth in the plan, is 'to investigate such problems of world-wide interest as relate to the magnetic and electric condition of the Earth and its atmosphere, not specifically the subject of inquiry of any one country, but of international concern and benefit. "Among the problems proposed was the magnetic survey of ocean-areas and magnetically unexplored regions, so that more accurate and comprehensive charts might be constructed. It was in the realization of this part of the plan that the *Carnegie* did such useful service during 1909 and 1929. The first six cruises were made almost exclusively for the surveys of the Earth's magnetism and electricity for which she was designed. The seventh cruise was to be unique in the vessel's history, as its program contemplated besides these survey-operations extensive researches in oceanography, including the exploration of the ocean-depths for the physical, chemical, and biological conditions found there.

In May 1928 the *Carnegie* left the United States for a three-year cruise of all oceans – the seventh since her launching in 1909 – to further increase the store of geophysical data. Captain James Percy Ault, and the staff under his command, had completed one year and a half of this voyage when disaster struck suddenly. The ship and its unique equipment – evolved in twenty-five years of active endeavor of the Department – were totally destroyed, and the Captain lost his life together with the Cabin-Boy. The tragedy took place November 29, 1929, at Apia, Western Samoa, when a gasoline explosion occurred while supplies of fuel were being stored aboard.

The following pages sketch briefly the earlier work of this famous research ship in her quest for scientific facts, and give a narrative of the seventh and last cruise.

There was a scientific staff of eight, in addition to a full complement of sailing officers and crew, numbering seventeen. On leaving Washington, May 1, 1928, the members of the party and their fields of research were: Captain J. P. Ault, commander of the *Carnegie*, and chief of scientific staff; Wilfred C. Parkinson, senior scientific officer, atmospheric electricity and photography; Oscar W. Torreson, navigator and executive office, magnetism and navigation; Floyd M. Soule, observer and electrical expert, magnetism and physical oceanography; H. R. Seiwel, chemist and biologist, oceanography; J. H. Paul, surgeon and observer, meteorology and oceanography; W. E. Scott, ob-

server, navigation, magnetism, and commissary; and Lawrence A. Jones, radio operator and observer, radio investigations and magnetism.

The scientific program was carried out successfully; computed values of the various observations were forwarded from port to port in such a form that they could be immediately utilized by workers ashore, and by the hydrographic offices of the world. The prompt publication of results necessitated continuous application to duty on the part of the staff, whether at sea or in port. But this also made the expedition scientifically successful, although the vessel and all its equipment were later destroyed. On the other hand, it may be said that the work during the cruise was only a beginning, for it will take several years to analyze and correlate further these data.

[Excerpt from Foreword by John A. Fleming]

We now skip to page 162 of the "*Last Cruise of the Carnegie*" as the *Carnegie* is approaching Easter Island.

We were now nearing the famous "riddle of the Pacific" – Easter Island. No mail awaited us, no clubs or theatres to offer relaxation from the two months of scientific routine; but everyone looked forward impatiently to a sight of land. We made a great loop to the southeast of the island to clear the strong trade-winds, and then headed northward and sighted Rano Kao [sic] Volcano on December 6. After skirting the Bird Rocks of legendary fame we anchored in the foul ground of Cook's Bay, opposite the village of Hangaroa.

The island looked very uninviting from the open roadstead. It was no more than a rocky waste. Yet it proved one of our most interesting visits. This tiny, isolated speck in the ocean presents a great challenge to the archaeologist. It lies two thousand miles from the nearest mainland, and more than a thousand from its nearest island neighbor. Yet here is undeniable evidence that thousands of people once lived on these treeless, almost sterile lava-plains. Today only about three hundred apathetic natives with their domestic animals manage to scratch for a living between the boulders, in soil that will not even grow the coconut. Furthermore, water is scarce, for the coarse volcanic soil is so porous that the forty-inch rainfall is lost at once. They water their flocks and wash their clothes only from brackish springs along the beach at low-tide, and from the crater-lakes high up in the volcanoes.

To make the picture even blacker, the sea is almost devoid of life in this region, and because the island is not surrounded by shallow waters, the villagers cannot expect to exist on shell-fish or slugs. How is it possible that this inhospitable tiny island once produced the surplus leisure and labor necessary to build some of the most stupendous memorial architecture in the world's history?

Easter Island, or Rapa Nui ("Big Dancing Paddle") is situated in the South Pacific Ocean at 27° south and 109° west. It is about midway between Coquimbo, in Chile, and Tahiti. The nearest island is the uninhabited Ducie (over a thousand miles away), except for the rocks of Sala y Gomez, which lie to the east. The area of Easter Island is forty square miles. It is roughly triangular in shape, and consists of mountains and plains – gentle rolling contours except where the volcanoes are situated on the coast. Here, there are bold cliffs. There are no true valleys, formed by erosion; and there are no running

streams. The climate is about ideal, with trade-winds blowing continuously from October to April.

But our attention was soon distracted from the island itself to the swarm of native boats which had come out to greet us. Some of them recognized us at once, since the *Carnegie* had called here before. But the real reason for the excitement among them as that they had not seen a ship for six months, so far is the island out of commercial traffic-lanes. While Torreson and Scott were still recording the bearings of the ship, the government agent and two political exiles from Chile climbed aboard to bid us welcome.

A party from the *Carnegie* at once took the dinghy ashore for a visit to our old friend, Mr. Edmunds, the only permanent white resident. He is an agent of Williamson, Balfour and Co., who lease the whole island from Chile for stock-raising. The landing is precarious even on a quiet day, and highly exciting when a moderate surf rolls in from the open sea to the west. A narrow channel in the rocks leads to a few feet of sandy beach. One must idle a moment outside the channel waiting for a swell large enough to carry the boat through; for even an eight horsepower outboard motor cannot make headway against the out-rush of a receding wave.

On shore we found the whole village collected. Over the rock plains little puffs of dust converged toward the landing, raised by native cowboys galloping at their characteristically reckless pace. Mr. Edmunds was soon persuaded to accompany us back to the ship for a renewal of acquaintance.

Upon our return a sight greeted us which was to become more and more familiar as we voyaged through the Pacific islands. The *Carnegie* swarmed with brown faces. On the fore-castle-head a seaman was bartering an old sailor-hat for a wooden idol. On the quarter-deck the steward was haggling for a hatful of eggs. Oscar the cook was offering a handful of empty bottles for a scraggly chicken; but to his dismay was told that only the transfer of his trousers would close the deal. Members of the staff found shirts the magic medium of trade. Strangely enough, new shirts taken from the lockers were not so much in demand as old ones on your back. The natives were in no great hurry to come to a bargain, and would often amble away as soon as you came to their terms.

As days passed the whole population acquired the necessary shirts or trousers, and playing-cards, neckties, and cigarettes were then demanded in exchange for souvenirs. The people were inordinately fond of cigarettes, especially the women. What a contrast from the time of the ancient explorer, Gonzalez, when the smoking indulged in by his crew precipitated a panic of fright among the inhabitants! They raised great lamentations whenever they saw smoke rising from the mouths of the sailors, and insisted that smoking be stopped. Gonzalez was not able to determine the cause for this superstitious fear, but could only conclude from the sign-language they employed that they objected because "smoke goes upwards!"

Among the trinkets we picked up were stone fish-hooks, obsidian spear-heads, wooden house-gods, "reimiros," hieroglyphic tablets, and small stone-images which were made to resemble the gigantic statues for which the island is famous. The basalt fish-hooks were of enormous size, and none of us could imagine a fish being caught by them. But there were smaller ones made of human bone which were actually used at

the time of our visit.

The wooden images we obtained were, no doubt, modern imitations. It was learned that expeditions value these objects, and so they are made for trading with the infrequent ships that come this way. They were originally made of "toromiro," a native hard-wood bush now almost extinct from the depredations of the sheep and cattle. Surgeon Cooke of the *Mohican* Expedition describes these wooden house-gods as "rudely carved out of the solid wood, hideous imitations of the nude human form, male or female; two to three feet in length, with preposterous development of the chest and preternatural collapse of the abdomen, as though famine had brooded over the land and the patient had perished of inanition; with attenuated forms, long, slender arms and legs, narrow faces, a goatee, and long prominent ears. In the eyes of these idols the iris is usually represented by a circular button of bone, generally cut from a human skull; while a fragment of obsidian, fixed in a round hole in the center of the bone, and which glistens in the light, makes a fair imitation of the pupil, both being deftly fitted in the wood of the eyeball."

Paul succeeded in acquiring two "reimiros," one of which was a beautiful specimen of ornamental wood-carving. These curious objects were hung by strings over the chest as a decoration in the days when "war-dances" were performed. They are shaped like a crescent moon, from one to two feet from horn to horn. The hard wood from which they are made is intricately carved with the characteristic hieroglyphics of the ancient race.

After our first bout of bartering with the natives aboard, several of the staff went ashore for lunch with Mr. Edmunds. How good his fresh vegetables tasted after our two months of tinned food! There were cucumbers, lettuce, fresh mutton, and bananas. Others stayed aboard and became acquainted with the two Chilean exiles: one a military attaché in Paris who was sent here for being involved in a revolutionary plot; the other a senator who had made some political blunder. Neither spoke English, but our fragmentary knowledge of French, German, and Spanish gave us the necessary vocabulary for small talk with these two charming gentlemen. Who knows but that the authorities in Chile have forgotten their political crimes—forgotten their very existence?

Paul went ashore to secure volunteers for his studies of racial metabolism, never suspecting that half the stay in the island would be spent in finding an Easter Islander! So hopelessly mixed are the races here that only one old woman about eighty years old had any reasonable proof that she was of pure native stock. This old woman made a beautiful "kete" basket for Paul from the rushes which grow in the crater-lake of Rano Kao. She was the only one who remembered the ancient art of weaving these rushes.

Speaking of his visit to the home of this old lady Captain Ault writes:

"In one small hut, consisting of one room with a dirt floor, lived a family of four women. There was a pile of sticks in one corner, a small pile of corn in another, a raised platform with some bedding in a third corner, and in the fourth corner a more elaborately-equipped single bed, about five feet above the floor. A few magazine illustrations were tacked to the wall, some straw was scattered about the floor, oth-

erwise there was no furniture and the walls and ceiling were full of cracks through which the rain doubtless entered freely. This white-covered bed, elevated above the dirt, gave the startling effect of a shrine amidst squalor, of a white rose amidst a patch of cockle-burrs, of a best room or parlor in the middle of the kitchen.

"And here lived the old grandmother, one of the few surviving natives of the old days, a real *Paquensa*, who spoke only a few words of Spanish, and was proud to speak them all at once as we entered the hut where she was squatting in front of a small fire of corn-cobs in the middle of the floor, with a battered old kettle resting on an oddment of bricks, boiling a few grains of corn for the family dinner.

"Her daughter is the mother of two girls, one very dark, about 18 years old, with a native father, and the other a very fair girl about 16 years old, who could easily pass as a white girl. Her father was a white man, a seafaring man, here today and gone tomorrow. And this fine bed is for this girl, the jewel and treasure of the family, the rose born to bloom unseen."

Hardly a crew touches here without leaving some trace in the population, for every family seems anxious to boast a white child. Voyagers of the eighteenth century, whalers of the nineteenth, shipwrecked sailors, traders, expeditioners, and Peruvian blackbirders, all contributed their quota.

The first afternoon was spent ashore poking about the village. We mounted the tough little horses which were offered everywhere for our use in exchange for a smoke. Young girls lined the fences along the road, making fun of us, and flying precipitately behind the house when we rode too close. Good horsewomen themselves, they laughed uproariously when we lost control of our mounts in trying to pursue them.

Toward evening we saw a revolting meat-market scene. An old woman had slaughtered a sheep near the center of the village, and a crowd began to gather, along with the flies. They brought sweet potatoes, bananas, and taro with which to barter for meat. The carcass lay in the dirt, positively black with flies. As many as could reach it proceeded to pinch the meat, jabbering away with the old woman who was going around in her turn rolling over the vegetables. From time to time, someone having found what he considered a tender cut, would yell for a knife and hack off a piece, only to have it knocked out of his hands by the old lady, as too large for his offering of yams. While it rolled in the dirt and the flies were having their turn, they argued to a bargain.

But all was not squalor among them. Some of the houses had flourishing flower-gardens. On the day after our arrival the villagers appeared dressed in dazzling white, thanks to our contributions of soap and linens. They love to look clean themselves. We had taken ashore a formidable accumulation of dirty linen to be laundered by the native women; and paid for the work by presenting the laundresses with twice the amount of soap necessary to do the washing. Nothing is so much appreciated as this present. On a previous visit Captain Ault had taken great pains to teach the women how to make soap out of grease

and potash, but it was characteristic of these folk that they would rather go without than take the trouble to make it.

No one on the ship was allowed ashore after sundown because of the precarious situation of the vessel. The usual sea-routine of watch-and-watch was kept aboard so that we might put out to deep water in an emergency. We shall see how fortunate this provision proved to be.

The houses of the village are fairly substantial structures of wood. They rely on wrecked vessels for their lumber. The shore near the boat-landing is covered with spikes, bolts, anchors, and chains from these unfortunate ships. Windows are a rare luxury. The floors are usually of dirt. Furniture is scanty and most of the natives sleep on the floor or on low bunks set against walls. As a rule several families occupy each house. We saw a few cooking utensils, but for cooking the Samoan style of the hot-stone oven is relied on.

The schoolhouse was built in 1914 and the "governor's" wife is the teacher. Instruction is given in the Rapa Nui language, which was put into writing by former missionaries. The school-mistress does not take her duties very seriously, and the building is used as much for community dancing and feasts as for anything else.

There is no ordained priest for the village church, but a missionary comes out each year on the boat from Chile to baptize the infants, preach a sermon, and hold a service for the dead. He returns with the vessel, and the church-affairs are supervised by a native patriarch.

One of the recent visitors to Easter Island reports a scandalous funeral ceremony which he witnessed. A distinguished personage of the island had died. Just as the body was lowered into the ground the natives lined up and burst into a perfectly drilled "Hip, Hip, Hooray!" No doubt, they had picked up this cheer from a passing English ship, but had not been told that it was hardly appropriate as part of the funeral-rites!

December 7 was to prove our only full day of liberty ashore. An assortment of horses and saddles awaited us on the beach in the early morning. It was first come first serve. There were various combinations to choose from: good horses with makeshift saddles, feeble nags with shiny trappings, and some with only a "sheepskin over a ridgepole back." Even stirrups were a luxury, and we had before us a thirty-mile "ride" over the roughest terrain imaginable, headed for the famous sculptors' workshop at Rano Raraku.

What a cavalcade! Our Captain rode proudly in advance on Mr. Edmund's handsome steed, with genuine saddle and stirrups. Behind him stumbled a motley array of bedraggled followers. A Coxey's Army on horseback. Many of the men had apparently forgotten how to shift gears. Some would lurch forward into full gallop, other stall at the first step. In one minute the party had deployed all over the landscape, but not in obedience to the Captain's command.

First one horse, then another, was a runaway. The bold volunteer who hastened to aid a colleague found himself out of control in a moment, and before long the dignified explorers were weaving wild circles over the cruel lava-fields, to the amusement of the native guides. Captain Ault laughed uproariously at the exhibition. He had been born and raised on a Kansas farm, and had an unfair advantage over the rest, some of whom had never mounted a nag before.

The horses deserve the study of a psychologist. Should there be a few feet of sod beside a rock-pile, they invariably chose to clatter over the rough, and would shy away from the grass as though it were poison ivy. And, after all, we went where the horse chose to go. With the help of the guides we steered an easterly course, but with much tacking and wearing.

Clambering out of the village over a low ridge between two volcanoes, we proceeded toward the southeast coast, where we found mile after mile of megalithic burial platforms, with their grotesque statues tumbled over in ruins. The ground was very uneven, and strewn with lava-boulders. What grass there was occurred in hard tufts; so that one was more comfortable on board the horses than on foot. Scattered over the plains are small stone enclosures in which yams or sugar-cane or taro are growing. Besides making a clearing for cultivation, these stone circles keep the sheep and cattle from destroying the crops.

The first stop was made at Vaihu, a cattle-watering hole on the beach. There was formerly a considerable settlement here with a village church. There is now nothing but a windmill and a shed – no inhabitants. While the guides were watering the horses, we amused ourselves by turning over the loose rocks at the base of the images, in hope of discovering some ancient relic overlooked by previous expeditions. Nor were we disappointed. Paul found a collection of skeletons with bones intact, and a pile of old skulls. Climbing under the rocks he passed skulls out to the others. One of them had the chiseled markings supposed to be the sign of a chief.

While we were digging around in this way we saw a solitary native bathing at the base of the platform. Each time before he dived into the water he vigorously made the sign of the cross three times, as he stood at attention facing the sea. Apparently he had some superstitious fear of the sea.

A short ride brought us to the cabin of two Scotch shepherds who had been brought to the island for one year to set up fences for the cattle. These men said that our disturbing the bones of the dead was responsible for the heavy rains that fell throughout our excursion. We were much surprised to find a turkey walking around in their grounds. They explained that it was left here by the Routledges of the *Mana* Expedition.

After tea we proceeded to the volcano, Rano Roroku [sic], on whose slopes the hundreds of statues were quarried. The nearer we approached, the harder it rained. Only the tremendous spectacle, which had been visible for many miles, kept us from turning back. The long rows of overturned images and an occasional fig-tree offered shelter during the heavier showers, although we could not have been more thoroughly soaked.

Half buried in the débris from the quarries above, dozens of huge busts stand up menacingly. They are single blocks of lava, twenty to seventy feet from waist to head. There are no two alike; but all have a prominent aquiline nose, wide nostrils, thin, closed lips, and bold chin. None of these now standing carry the absurd three ton hats which we had seen on our halt at the beach. Their features, haughty and arrogant, suggest a scorn of life. Captain Ault remarks: "The unseeing eyes, somber, austere expressions, and unsmiling lips give no hint of the secret which they have been guarding for centuries."

The grotesque heads are quite flat behind, as though a knife had sliced off vertically the whole after half behind the ears. This represents an ideal of beauty not confined to this is-

land, since many Polynesian peoples shaped infants' heads in this pattern in stone molds or wooden forms.

Everywhere one sees evidence of a sudden interruption of the work of the sculptors. Some statues are still undetached from their rocky beds high up on the hillside, some have fallen to pieces in the process of lowering them down, some are only roughly blocked out, while other were apparently being moved to the platforms around the coast when all work ceased. It has been suggested that these were busts of great chiefs. No one knows. The magnificent architectural plan for a complete double line of images facing each other around the thirty-odd miles of coast, with a paved ceremonial floor between, can be easily made out even now. The shaping of these twenty- to sixty-ton images with no tools but stone, sand, and water, is no more remarkable than the tooling of the much harder material of the platforms and foundations which ring the island. Some of us were to see the famous Inca work in the Titicaca region in Peru, but in places this masonry was equally impressive.

What this great outburst of the memorial arts means is still a mystery. Was Easter Island to be the burial ground for other Polynesian islands? How could it have been, when the nearest is over a thousand miles away, and only open canoes were known to the ancients. The only instruments of navigation we heard of were crude gourds drilled with holes for measuring altitudes, while no chronometers were known. And how were these enormous finished statues transported for ten or fifteen miles across the rough lava-fields without breakage? There has never been found a trace of forest on the island to furnish wood for levers or sledges. The engineering of the pyramids presented no greater problems.

To account for the former great population, McMillan Brown has developed a theory which he discusses in his book, "The Riddle of the Pacific." He presupposes a nearby archipelago which was submerged in historical times. He bases his assumptions on the following evidence: Easter Island legends say that the first settlers came in canoes from the northwest; the navigator, Davis, sighted land to the east in 1686, now disappeared; Juan Fernandez reported land to the south, with great rivers flowing down to the sea; the ancient name of the island is said to mean "navel," as though Easter Island were the center of the group of islands; and there have been recent probable submergences of land in the Pacific. This theory shows what a wild assumption must be used to explain the presence of so many people on the island in ancient times – the submergence of a whole archipelago. Our soundings in approaching and leaving the island gave no hint of such a submergence, although a ridge as high as the Andes was discovered in the sea near the coast of Chile.

The fig-tree umbrellas beneath which we had halted on the way out had furnished more fruit than cover, but we were still ravenously hungry, and wet. The only shelter we could find on Image Mountain was in an artificial cave left by the sculptors when the lava was cut away around one of the giant images. We spread our lunch on the chest of the completed image, which still lay there undetached from its rock bed beneath. This statue was an excellent proof that the work was suddenly interrupted. All about us we could see through the rain images in every stage of completion – some of them halted on their way to the burial platforms along the coast.

What catastrophe caused this cessation of labor? There is no evidence of volcanic activity in historical times. It is not probable that the island was attacked by hostile neighbors – the nearest inhabitable island being over a thousand miles to the westward. Were the people wiped out by an epidemic of disease? Or did they devour each other during a famine? This is another of the Island's many mysteries.

But heated arguments on this subject did not warm us up enough. It was cold and we had to move along to keep from shivering in our wet clothes. So we proceeded to climb up the hill to see the crater lake above us. A short muddy scramble up the Rano Roraku [sic] and one stands at the edge of a lake spotted with island-like masses of dark rushes. Cattle were browsing here and there on the margins, although the grass seemed very sparse. Hoping to bring home some new species of plankton from this isolated crater-lake, we had brought some small silk-nets. After several attempts to throw the net into the open water beyond the rushes, Paul waded in over this barrier and cast it, standing in water up to his waist. Lining this crater on the inside are more statues, but somewhat smaller.

On our way back to the plains Seiwel and Paul circled the rim in hopes of shooting two hawks which were soaring over the quarries. We did not then know that these two were the only land birds left on the island. Many attempts have been made to introduce game, but have invariably failed. The native guide encouraged us to kill these hawks, since they had lost many a chicken by their depredations.

The hunt was really sportsmanlike. We were armed with a tiny ".22" gun, and they with powerful claws. They would spiral upward high over our heads, poise for a moment, and then, if we faced away, manoeuvre behind us, and swoop straight down at our heads, with blood-curdling cries. The odds were on their side, and we did not even wait to exhaust our supply of shot.

Before turning back along the southeast coast toward Hangarao, we rode about a mile to the famous platform of Tongariki. Here we saw the best examples of masonry. A great pavement, made by fitting together gigantic stone-blocks, acts as a pedestal for several of the largest images we had seen. They had fallen, and were now lying face downwards, with their red tufa hats rolled many yards inland. One of these hats was a solid piece of rock twenty-seven feet in circumference, and nine feet high. Under this platform one comes across caves in which are human bones and skulls.

During all this time it had been raining. Of the large amount of film exposed here, only a few negatives were worth printing. This was a pity, for this platform offers the best "shots" of all. Should any of the readers happen to stop off at Easter Island, they might bear this in mind!

It was a great disappointment that we could not return to the ship by way of the north coast. The sea breaks furiously on these great basalt-cliffs, wearing them down to fantastic arches, towers, and pinnacles. The *Mohican* Expedition has written some vivid descriptions of this romantic shore-line. They found in the caves of these cliffs many deposits of human bones – presumably the remains of chieftains which were hidden here to prevent desecration of their bodies by their cannibal enemies.

It is painful to write of the ride home. In the case of some of us it might be described as a walk! Rain, cold, thirst, rough country, wet saddles, broken stirrups and bridles, mud, barbed-

wire fences, unwilling horses – all make it a nightmare in memory. Certainly more than one of us would have preferred to stand up for the evening meal on board!

The next three days were busy ones indeed. The tent for the magnetic and atmospheric-electric station was pitched ashore, and the intercomparisons of atmospheric electricity and the magnetic elements were carried out day and night. The tent was surrounded by a circle of native boys and girls who sang their folk-songs. Captain Ault identified some of these songs as being Tahitian and even Samoan.

But the flies and mosquitoes did not keep a respectful distance, as the singers did. The old navigator Schouten named Rairoa "Vligen Island," for the hordes of flies he encountered. He should have called here first! However, the worst pest of all was a little beetle that had the nasty habit of crawling into one's ears. Frank Moline, one of our seamen, suffered the tortures of the damned from this cause.

During the afternoon Paul had clinics ashore, for the villages have no physician among them. It was naturally impossible for him to hand out any but the simplest remedies to these ignorant people. There was no evidence that the people used native drugs at the time of our visit. Several cases of serious disease like leprosy, tuberculosis, and syphilis were found, but no treatment for these could be considered in the few days of our visit. Almost the whole town had the "seven-year itch;" so great bowls of sulphur ointment were distributed with direction for proper use – directions which were certainly not followed, since it involved the treatment of the whole village simultaneously, and a complete change to fresh linen. The infants suffer terribly from eye-infections carried from one to another by the hordes of flies. The few lepers among the people have had a fine house built for them some half-mile from Hangarao [sic]. They live there during the week; but on Sundays entertain all their relatives from down in their quarters.

On his rounds through the village, Paul would single out two or three natives as subjects for basal metabolism measurements. They were brought aboard for supper, and would be put to bed in the chart-room – a necessary preliminary to the experiments made next morning. Basal metabolism is a measure of the rate at which oxygen is consumed by the body when lying at rest. Recent researches have hinted that one race may use oxygen at a faster rate than another – live at a higher speed, physiologically. Accordingly, the doctor had been supplied with a portable apparatus for use on this cruise when opportunity offered. The instrument was loaned by Dr. Benedict of the Nutrition Laboratory of the Carnegie Institution. Unfortunately, conditions here were very unfavorable for these studies, since we could not work on shore. The vessel rolled so miserably in the open roadstead that the patients were never at complete rest during the readings.

One afternoon the Chilean exiles gave a tea in their tiny bamboo-grove in the church-yard. They have put up a partition across the nave of the village church, and live on one side. A very jerky conversation was carried on in French, German, and Spanish – all mixed at once into a single sentence at times.

We picked up from these men and from Mr. Edmunds some good yarns about white visitors to Easter Island. It seems an aged priest was once sent out here from Chile to spend his last days ministering to the natives. He was presented with a

luxurious gold-plated casket and a very large stock of wine on his departure from the coast. Everything went well for several months after his arrival: the casket was installed in the church as an ornament, and the wine stowed in a cellar below. Since the villagers have no taste for intoxicating beverages the old priest thought his wine safe. However, he soon had reason to suspect thievery. The barrels were installed in the altar upstairs, in hope that the culprit would not dare to commit a sacrilege. Still it leaked, and on investigation it was found that the village "policemen" had developed the taste. The real tragedy in his story came some time later when the wine was exhausted and the old priest had not yet died. There was nothing to do but wait for the annual boat and depart with his golden casket. He refused to part with this although a very good offer had been made to him. He could not sell it since it was a gift from his bishop at home. In his stay on the Island he had been able to persuade at least one couple to be married. The woman involved had been told by her Tahitian father that it was a necessary rite.

Some years ago the government of Chile had the sense of humor to send out a "registrar of births, marriages, and deaths." Needless to say the man left in the next boat, for fear his arduous duties should undermine his health!

There have been several shipwrecks on Easter Island; and it is from these that the natives get their building materials. A few years ago they had used up the last of the timber from a wreck, and were in need of more, when a schooner carrying Oregon pine was destroyed in a storm. Unfortunately for the inhabitants, the only thing they saw from this disaster was the crew of the vessel. These men had navigated a whale-boat hundreds of miles to the Island. Mr. Edmunds describes what mental distress it was to realize that the valuable cargo of lumber was floating around somewhere in the Pacific, when they needed it so badly themselves.

The description given by Mr. Edmunds of the agony these men suffered in reaching Hangaroa village was extremely vivid. It made the literary attempts to portray such an experience look pale by comparison. The fellows had to remain here almost a year before a ship from Chile called, to take them off. One of the crew found the boredom too great and shot himself.

There are some exciting yarns about the war-period. On one occasion the German Asiatic fleet used Easter Island as a rendezvous and carried off beef and mutton. Another time, the S.M.S. *Prinz Eitel Friedrich* came into Cook's Bay with a French bark in tow, which carried a cargo of coal. After the coal was transferred into her own bunkers, she sank the captured vessel in the roadstead. The local populace at first did not know that a war had been declared, and were rather mystified by these events. But through the boasting of some of the junior officers, the information leaked out. The Routledge Expedition was here at the time, and anxious about the safety of their British ship, the *Mana*. On their return they informed the Chilean and British authorities that the neutrality of Easter Island had been violated. But by that time Von Spee's squadron was operating off the Falkland Islands.

A few days later, the staff together with the two exiles made an excursion to Rano Kao. This old volcano rises immediately to the south of the village to about thirteen hundred feet, and contains a fine crater-lake. Its surface, half a mile in diameter, is covered with a dense mat of vegetation – so thick that the

cattle walk with safety on its surface, and small trees grow on it. The descriptions in Prescott's "Mexico" of the floating islands in the ancient capitol came at once to mind. These Aztec gardens could be moved at will like rafts, whereas in Rano Kao the lake is literally choked. This great garden rises and falls with the level of the lake, which is about half way from the rim to sea-level. Toward the sea the rim has been greatly worn away, and in some distant period, Easter Island will boast a crater-harbor like Pago Pago.

The party divided on the skyline near some carved rocks. Soule, Seiwel, and Paul decided to approach the prehistoric cave-dwellings on the seaward rim of the crater, by descending to the lake-level and up the rocky slope inside. The others went on around the top. Passing showers made the mud and boulders slippery, and the going was tedious. At the lake-level we found here and there a cluster of banana or fig-trees, and from the shore of the lake practically no water was visible because of the vegetation floating upon it. With great hesitation we crept out upon these curious gardens, floating no one knows how far from the bottom. One might be more bold with a pair of snowshoes. Every Saturday the women of the village make an excursion to this lake to do the family wash.

It was not until we started the mad scramble up the other steep slope of lava-boulders that we began to realize what a task we had undertaken. Every few minutes a loud clattering of rocks echoing across the crater told us that someone had too hastily trusted his footing. In time the rim was reached and we found the rest of the party exploring the seemingly endless underground burrows made by some ancient race. Soule and Parkinson were photographing the carvings on the rocks near the numerous low entrances. Having crawled inside one of these curious doorways one could proceed through a maze of tunnels by stooping slightly. In places the roof was caved in so that one had to retreat to try a second shaft in a different location. The painted stone-slabs which decorated these caves have all been removed by previous expeditions, although we saw a few fragments here and there.

Someone has estimated that thousands of human beings might be accommodated in these tunnels, but it was not clear what purpose they served. Some advance the notion that they were used in times of tribal war; some say that the young girls were secreted here until they were marriageable; but a more reasonable explanation seems to be that they were temporary living-quarters for the population during certain religious festivals and while waiting for the return of the sooty tern to the "Bird Rocks," which lie off the base of the cliffs some thousand feet below.

To prevent the extermination of the sea-birds and spawning fish, one of the more recent kings made it a capital offense to eat birds' eggs or fish for the two months preceding the return of the sooty tern from the north (usually in September). He reinforced this taboo by appealing to the vanity of the natives in the following way. He who first swam out to the rocks, climbed the precipitous cliffs, and brought the egg of this tern to land was appointed "king" or chief bird-man for the year. Accordingly the whole population took up their abode in their caves on this over-hanging cliff for a period of several weeks in July and August, while they awaited the arrival of the first terns. During this time, festivals of dancing and feasts were arranged. This

restraint allowed time for the native birds to hatch their young, and for the spawning of fish.

On the way down the slope toward Hangaroa, someone sighted a steamer on the horizon. This caused the greatest excitement among the natives. At once they concluded that it must be the Chilean vessel, now long overdue, which was to call here for sheep and wool. Seeing this ship was one of the most remarkable coincidences we had observed, for Easter Island lies far away from any possible commercial route. It might have been a tramp-steamer making a trip to Australasia from the West Coast of South America.

We had found on our arrival that many sheep had been driven into corrals near the landing to await the vessel promised for November. Mr. Edmunds was getting apprehensive when it was a month overdue, so through our short-wave radio equipment on board, and amateur stations in the United States, we were able to forward an inquiry to Williamson, Balfour and Company offices in Valparaíso for him. Easter Island has no cable or radio equipment, of course.

This brings to mind certain headlines that appeared in San Francisco newspapers on our arrival in July: "Carnegie scientists prove Easter Island has not disappeared," or words to that effect. All of us but Captain Ault were bewildered by the statement, until he explained that some enterprising newspaper reporter broadcast a radio to Easter Island after the great earthquake in Chile some years ago, and, not receiving a reply, published the report that the island had gone down. We were to encounter even more bizarre reporting during the cruise.

The evening of December 12, a time set aside for a grand village-dance and feast in our honor, found us far out to sea. Late in the morning it was found that the ship was drifting from her anchorage and was headed toward the rocks to the south of Hangaroa – our brass anchor was gone in sixteen fathoms. Fortunately for us the engine responded promptly in the emergency, and with the help of a light breeze, we were clear of danger. It was a very close call. We were not to leave this inhospitable anchorage without paying our forfeit. So fouled with coral heads is the ground of the bay that almost every ship loses an anchor.

This incident shows some of the difficulties of operating a sailing-vessel with non-magnetic features like manila hawsers instead of iron chains. The hemp had been worn through by the constant chafing on the sharp coral. When the second anchor failed to hold, there was nothing to do but put to sea at once, thus cutting short what was promising to be the most interesting call of the voyage. Only by the exercise of constant vigilance was the Island deprived of one more shipwreck.

While the *Carnegie* stood off and on under fore-and-aft sails and engine-power, the doctor was sent in the dinghy with a radio message for Mr. Edmunds, assuring him that a steam-vessel, the *Anartico*, was due to leave Valparaíso about December 20th. The reply had been delayed several days by the wretched radio conditions in the neighborhood. Scott went ashore to arrange for the immediate slaughtering of some animals for our larders. And Soule went to mail some letters. Believe it or not!

There were a few postage-stamp enthusiasts on board. Letters are so rarely mailed here that the members of the staff usually send home some mail in the hopes that the envelopes will

carry the surcharge "Rapa Nui." None of the letters mailed on Cruise IV reached the United States, so there was less enthusiasm this time. However, Soule delivered some mail to Mr. Edmunds for forwarding by the next boat. He succeeded in getting it through to the States, but found no special stamp or surcharge. The envelope had been inscribed by the hand of a postmaster "Isla de Pascua," and carried the usual Chilean stamp.

By mid-afternoon the dinghy was piled high with beef, mutton, chickens, and bananas; and we waved good-bye. We will never forget the kindness of Mr. Edmunds, and of the new friends we made on this lonely island.

During our few hours of liberty ashore we could not hope to add anything of importance to the knowledge of Easter Island. Anyone who is interested in learning more about this fascinating place may look up the books referred to at the end of the chapter. It was well that we had completed our scientific shore-work during the first few days of our visit, and had brought all the equipment aboard. The sudden departure only deprived us personally of a chance to relax for a few more days in prowling around the coasts.

We were able to learn a great deal about these people in our short stay. There were always from ten to twenty of them on board during the day, and the whole village stood by as we did our scientific work ashore. The population is now about three hundred. Mr. Salmon, who lived during the latter part of the last century, estimates that there were about 20,000 people on the island in 1850. Slave-raids, small-pox, cannibalism, and emigration to the islands of the South Pacific can easily account for the decrease. For example, at one period about 5,000 natives were carried off to work the guano-deposits on the Chinchas Islands off the coast of Peru. Of them only two returned – and these brought back the small-pox! The last of cannibalism seems to have been in 1864, at which time there were 1,500 people and a Jesuit mission established on the island. At present the population is slowly increasing, and emigration has ceased.

As we have said before, there is a great mixture of races here, but the average villagers may be described in the following words. They are medium in stature – a great contrast to the ancient inhabitants as described in Rogewein's [sic] narrative at the end of this chapter. They are a lithe, wiry folk with brown eyes; black straight hair; prominent cheek-bones; straight noses; and thin lips. There is no resemblance to the negro. Their skin is a light brown and their bodies are kept clean. They have a gentle, emotional, light-hearted disposition, and display no interest in the history of their past. These amiable islanders see no reason to work unless they are hungry at the moment. Mr. Edmunds engages most of the men as sheep-shearers for a few days each year, and employs some ten boys as shepherds. The others putter around in the garden for a few minutes occasionally, and spend their days galloping through the village on their ponies and in talking. How they love to talk! They show no desire to accumulate possessions and live in a little communistic society where everyone is considered a member of the same big family.

Once in a while they go out fishing. Our hope for witnessing a night crayfish-hunt with torches was not fulfilled, since we left so unexpectedly. Surgeon Cooke of the *Mohican* party gives a vivid account of the "strange, weird, savage and interesting sight."

There is no native or imported intoxicating drink on the island – not even the “kava” of the South Seas. Their morals seem adequate to their little society. Marriage in the exclusive, permanent sense is not the rule; but polygamy is not found, since mates may be changed without much ado.

Petty stealing seems to be the commonest crime. Perhaps this is because there is a no strict respect for personal ownerships. From the earliest voyages of Rogewein, Cook, and La Pérouse, the natives have been addicted to thievery. The picture of the ancient images made by La Pérouse’s artist and reproduced here shows examples of this propensity. One boy is reaching for a hat with a stick, another is stealing a scarf, and a girl is removing a book from the artists’ pocket.

Stealing is now punished by one day’s hard labor in the garden. This is a frightful penalty for an Easter Islander. A former governor constructed a tight sentry-box and placed the culprit inside for a day. It was so small that the victim could not shoo away the flies – a genuine torture-chamber.

The natives wear old-fashioned European dress, and have lost the art of making bark-cloth from the paper mulberry tree which grows in the crater of Rano Kao. Even their hats are acquired from the ships that call here once or twice a year, and weaving of rushes has been forgotten. There is no pottery, gourds being used as water-vessels where the family has not acquired tin-ware from trading.

The language used is the old Rapa Nui speech modified by the use of some Spanish, English and German nouns. It is a dialect of the Polynesian used throughout the South Seas. Their music seems to be similar to that in Tahiti or Samoa. We saw no native instruments. Their singing is simple three part harmony – bass, alto, and soprano.

There is little use for money on the Island. Goods are exchanged by barter. The ancient medium of trade is reported to have been rats! If that were true today it would be a good place to make fortune, for these rodents thrive. On leaving the United States we were asked to collect as many of these animals as possible for museum use, in the hopes that a few specimens of the old native rat might still be found. The only ones we saw were the common rats carried aboard ships. Nevertheless, a cake of soap was offered for each rat captured. The news spread through the village like wild-fire, and in a few hours a fine collection of *cats* was brought to the landing. The villagers could not comprehend why we wanted *rats* and assumed that we had used the wrong word. Two of these little kittens were

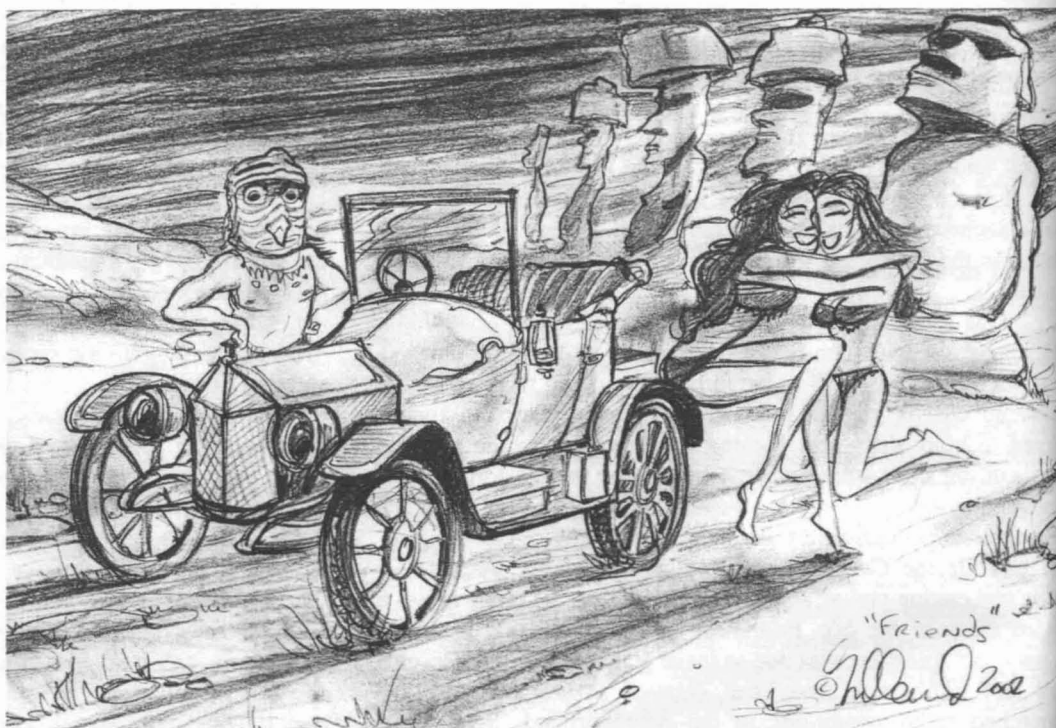
taken aboard, and our early departure left no time for rat-hunting.

These two Easter Island kittens were the treasures of the ship. They were named Lena and Cleo. Tom, from Washington, had become quite grown up since leaving home, and we hoped that he might be the proud father of some Easter Island offspring. Cleo fell overboard some months later; but little Lena eventually had a litter of some eight or nine kittens.

In comparing the conditions of life here at the time of our visit and during the previous visit of the *Carnegie*, Captain Ault has this to say:

In general there was a decided improvement in the dress of the people and in their manner of living. Many are growing yams, sweet potatoes, corn, and raising sheep and cattle. They have learned that a little labor will add much to their comfort and to their supply of food.

“The island is much improved in appearance. Fences have been built dividing the entire pasturage into several paddocks for grazing and breeding purposes, and the ranching is being done with modern methods, with trained shepherds. Eucalyptus trees are being planted each year and are doing well.



This cartoon, drawn by Peter Gullerud, was obtained by Rapanuiphile Tom Christopher who found it on Bay. As we noted in Vol. 15(2) in the “A Look Back” from 1924 (written by Major Douglas and Mr Johnson), the two men were astonished to encounter Percy Edmunds’ ancient Ford automobile, chugging along on an island path. In an amazing case of synchronicity, Gullerud was unaware of the old car on the island. He calls his drawing “Friends”: two Rapanui girls congratulating each other on their car, while a boyfriend in ceremonial mask looks on enviously. Gullerud can be reached at www.grootlore.com/petergullerud